

Date: Thu, 14 Jul 94 04:30:23 PDT
From: Ham-Ant Mailing List and Newsgroup <ham-ant@ucsd.edu>
Errors-To: Ham-Ant-Errors@UCSD.Edu
Reply-To: Ham-Ant@UCSD.Edu
Precedence: Bulk
Subject: Ham-Ant Digest V94 #221
To: Ham-Ant

Ham-Ant Digest Thu, 14 Jul 94 Volume 94 : Issue 221

Today's Topics:

 Antenna on my boat??
 GPS antennas
 loss in shielded balanced feeders
 Multiband matching circuit for 1/2 wave vertical
 Rohn Bolt Kit
 SWR vs Frequency Excursions

Send Replies or notes for publication to: <Ham-Ant@UCSD.Edu>
Send subscription requests to: <Ham-Ant-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

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(by FTP only) from UCSD.Edu in directory "mailarchives/ham-ant".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 8 Jul 94 17:53:21 GMT
From: ihnp4.ucsd.edu!usc!howland.reston.ans.net!europa.eng.gtefsd.com!
newsxfer.itd.umich.edu!nntp.cs.ubc.ca!unixg.ubc.ca!quartz.ucs.ualberta.ca!alberta!
atha!aupair.cs.athabascau.ca!rwa@@.
Subject: Antenna on my boat??
To: ham-ant@ucsd.edu

jeffrey@kahuna.tmc.edu (Jeffrey Herman) writes:

>Nathan - yes that will work fine. I sailed a boat from Hawaii to San
>Francisco with using the ballast keel as the 'ground'. It effectively
>used the ocean as a ground plane. I used 20M daily and was given
>great signal reports.

The problem here is that fresh water has a conductivity of about 20
mSiemens per meter, but salt water is far better - 5000 mS/m is
typical. Fresh water makes a poor groundplane, only marginally better

than typical loam soil. Salt water is about as close as one can ever hope to get in practise to the theoretical infinite perfectly conductive groundplane.

regards,
Ross ve6pdq

--
Ross Alexander VE6PDQ rwa@cs.athabascau.ca,
(403) 675 6311 rwa@auwow.cs.athabascau.ca

Date: Wed, 13 Jul 1994 13:29:11 GMT
From: ihnp4.ucsd.edu!swrinde!emory!gatech!darwin.sura.net!osceola.cs.ucf.edu!fang!
ulysses!trotter@network.ucsd.edu
Subject: GPS antennas
To: ham-ant@ucsd.edu

I have two questions about GPS antennas:

1. The antenna on my gps (Garmin 45) is about 4.5in long and .75in square (looking down on it). What sort of antenna is it? Is it a coil antenna. Something that seems strange is that the antenna on other gps's are sometimes longer - so why the length difference?
2. I'd like to mount an external antenna on my car. Garmin charges \$200 for it's mag-mount antenna and I wonder if it's possible to either get them more cheaply from another source or make one? Also, is it OK to use regular 50ohm cable for an external antenna (I assume that it is - especially since it is receive only, but I was concerned about signal loss at >1GHz freqs)?

Thanks for your help.

John Trotter
N20EV

Date: 13 Jul 94 20:56:47 GMT
From: news-mail-gateway@ucsd.edu
Subject: loss in shielded balanced feeders
To: ham-ant@ucsd.edu

Hello all, I've got a question concerning feeding a center-fed dipole (10 m overall length) which I use as a compromise antenna for 28Mhz thru 10 Mhz. It is mounted a few inches away from the wall outside my 6th floor apartment in downtown Montreal. I use a

balanced line to feed it (total length, about 10 m), with a 1:1 current balun wound on a large powdered iron toroid replacing the dinky 1:4 voltage balun in an MFJ 949 tuner. From rig to outdoors, the only viable route for the feeder is alongside metal central heating pipe and grille, and through an aluminium conduit.

Originally I tried 300 ohm twin lead as the feeder; the antenna system worked after a fashion (weak sigs to Europe and S. America with 50 W max), but I was concerned about unbalance due to the proximity of metal objects to the feeder leading to radiation from the line inside the apartment - I wanted to reduce exposure to rf, and also to reduce tvi, since the tv is close to the feeder.

Consequently, I tried using a shielded balanced line - two equal lengths of RG6 strapped together, with the braids joined and grounded, as suggested in the ARRL Antenna Book (16th Ed., ch. 24, p. 21). I've been using this over the last couple of months.

Certainly I have less tvi on my own set, which seems to suggest that there is less rf in the apartment; with a wavemeter, I only measure a signal from the feeder when the wavemeter coil is practically touching the cable. However, I have the impression that my signal is worse than before - even working Eu on 20 m is becoming a challenge. So my question is, how much extra loss should I expect using the shielded twined-coax instead of 300 ohm ribbon (remembering that the swr on the system is very high)? Is the loss/length the same as for RG6 used as a coaxial cable (similar loss to RG8), or is it halved because the cables are paralleled? Alternative suggestions? Of course, the other (most likely?) explanation is that the perceived difference in performance is purely subjective....

An entirely separate point, but would increasing the spacing from wall to dipole from 6 inches to, say, one or two feet be likely to make any significant difference - this is supposed to be a "stealth" antenna (painted black!), so any extra visibility would have to be offset by a significant gain in performance!

Thanks in advance, Dave (david@medcor.mcgill.ca), VE2HJT,
G4HJT

Date: 13 Jul 94 05:28:56 GMT
From: news-mail-gateway@ucsd.edu
Subject: Multiband matching circuit for 1/2 wave vertical
To: ham-ant@ucsd.edu

I have plans to put up a 1/2 wave vertical using traps from a damaged tribander yagi. But how to feed it with 50 Ohm coax? Any ideas? Does anybody know what is inside the "black-box" of the R5/R7 vertical? Is that or similar circuit described anywhere in ham literature?

Jouko OH5RM jouko.nurma@mail.ccnet.mailnet.fi

Date: 13 Jul 94 18:34:39 GMT
From: news-mail-gateway@ucsd.edu
Subject: Rohn Bolt Kit
To: ham-ant@ucsd.edu

I "misplaced" my bolts for my Rohn 45 tower. So, I need new bolts. The Rohn price list shows a "joint bolt kit", 45JBK, for \$2.40. Nowhere can my dealer find out HOW MANY bolts are in a JBK. Does anyone out there know whether ONE JBK is for ONE LEG (ie, 2 bolts & nuts) or ONE SECTION (ie, 3 legs = 6 nuts & bolts). At that price, I am assuming its one leg, but would like to think it's one section. Rohn doesn't have a toll-free number, even for their dealers, so I seem to be on my own here.

Terry Zivney, N4TZ
00tlzivney@bsuvc.bsu.edu

Date: 12 Jul 1994 21:01:10 GMT
From: news.tek.com!tekgp4.cse.tek.com!royle@uunet.uu.net
Subject: SWR vs Frequency Excursions
To: ham-ant@ucsd.edu

ab4el@jabba.cybernetics.net (Stephen Modena):

;In article <2vtes6\$p2c@chnews.intel.com>, <CecilMoore@delphi.com> wrote:
;>
;>..... The only condition where you get a 1/1 SWR is when the
;> ^^^^
;>reactance of the antenna is zero and the resistance equals the
;> ^^^^^^^^^^^^^^^^^^
;>characteristic impedance of the transmission line and that is fairly rare.

;Cecil--

;Are you sure about that? :^)

;What about the situation where the conjugate impedance (vector sum of
;resistance plus reactance) is equal to the characteristic impedance of
;the transmission line?

Actually, the *only* time SWR is 1:1 is the conjugate case (where the impedance of the load is the conjugate of the characteristic impedance of

the line). If the characteristic impedance of the line is $a + jb$, the load impedance must be $a - jb$.

In practice, the characteristic impedance of nearly any practical transmission line at HF and above is very nearly real. That is, the reactive part of the characteristic impedance is much smaller than the resistive part. So the common assumption that the characteristic impedance of a line is purely resistive is a good one for nearly any purpose, at HF or above. The assumption becomes invalid only when dealing with very lossy lines at very low frequencies. Therefore, for practical purposes at HF and above, only a very nearly purely resistive load equal to the (very nearly purely resistive) line characteristic impedance will result in a 1:1 SWR on the line.

Roy Lewallen, W7EL
roy.lewallen@tek.com

End of Ham-Ant Digest V94 #221
